COVERSHEET

EIA Program Report for FY2005-06
And
Budget Request for FY 2006-07

(Completed Program Report/Budget Request Not To Exceed Eight Pages and Must Be In At Least Ten-Point Type)

EIA PROGRAM NAME: South Carolina Junior Academy of Science

PROGRAM ADMINISTRATION

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PERSON SUBMITTING REPORT: Dr. Don M. Jordan

Signature: _____

Date: _____

FY 2004-05 EIA Program Report

EIA Program Name: South Carolina Junior Academy of Science under SCAS

The purpose of this report is to determine the effectiveness of the program in meeting its objectives during the prior fiscal year. The report also requests information on the objectives of the program during the current fiscal year. Please answer the following questions and provide quantifiable results when available.

Effectiveness Measures: (See attached definition of terms and directions)

1. What were the objectives of this program during Fiscal Year 2004-05?

SCAS strives to:

- Provide opportunities for students to participate in enrichment activities that can sharpen critical thinking, reward high academic achievement and strengthen national competitiveness.
- Provide opportunities for science and mathematics teachers to participate in enrichment activities that can improve classroom effectiveness, enhance professional growth and cultivate leadership capabilities.
- Provide opportunities for individual schools to participate in enrichment activities that can stimulate parental involvement, raise levels of community interest and intensify school prestige.
- Increase the number of K-12 students, teachers and schools participating in science, mathematics, and engineering activities.
- Enhance the competitiveness of South Carolina students at the Annual International Science and Engineering Fairs (ISEF) (grades 9-12).
- Improve public understanding of and appreciation for the role of science, mathematics and engineering in the State.
- Expand the MESAS program in the state of South Carolina.
- Increase the number of students in grades 5-8 in South Carolina that are nominated for Discovery Channel Young Science Challenge (DCYSC) and increase the number of winners from this pool at the national level.

2. Were the Fiscal Year 2004-05 objectives met? Please provide specific, quantifiable data and explanations.

The two junior divisions of the South Carolina Academy of Science include approximately 1,500 Junior Academy members (grades 9-12) representing approximately 70 active high schools and 3,000 Middle/Elementary Academy members (grades 4-8) representing over 150 active middle/elementary schools. The SCJAS Newsletter was written, edited, published, and mailed to SCJAS and MESAS members four times during the past year.

Twenty (20) events were sponsored, including 6 workshops (3 high schools and 3 middle/elementary) and 8 regional science fairs (which sent 4 to 8 students from each region to International Science and Engineering Fair, resulting in international-winners). The other events included the SCAS Annual Meeting, the Mail-In Contest and the Young Research Grants-in-Aid Program. This year's event winners received certificates, cash awards, special recognition from sponsoring groups, as well as trips to national labs, camps and the AAAS meeting (see May 2005 issue of SCJAS newsletter for details).***The MESAS Mail-Contest was designed with respect to the SC Science Curriculum Guidelines. We believe this feature is in part the reason for the increase in participants from 280 to 685.***

Fall workshops are sponsored annually by one of the regions' four-year colleges or technical colleges. The workshops provide opportunities to share ideas among fellow students, to familiarize students with the area's scientific community and to learn scientific techniques as well as how to do a research project. The workshops also develop an understanding among students about the research process. A secondary purpose is to motivate and recruit students into the fields of science, mathematics and engineering.

We have had three grand award winners, John Korman of Riverside High School (SCJAS Board Member 2002), Bevin Hutcheson and Paul Sagona as a team from Crestwood High School in Sumter South Carolina, and in 2003 Katie Van Schaik, a junior at Spring Valley High School in Columbia, was "Best of Category" award recipient. This award was sponsored by the Intel Science and Engineering Fair (ISEF). It is no small task to be best in the world when you are competing with the magnet schools all over the U.S. Katie Van Schaik now attends Harvard University and continues to credit the Region II Science Fair and ISEF stating "I feel like, because of the experiences I've had at the local science fair and at ISEF, I am on a level playing field with any student here [Harvard] in that area, and because I had so much experience discussing my research with judges at your science fair [Region II Science Fair], I don't feel intimidated by the prospect of speaking with people like Dr. Meselson (humbled yes, but intimidated no)". In 2004 at ISEF Steven Ross Fuller, Danielle Lauren Butler and Carly Mills Rosser won First Place in the "Best Team Project" Category.

Our activities have made a difference at grade levels 4-12. In 2005 at this year's Intel ISEF (May 15-21, 2005), **Patrick Hankins** placed third in the Chemistry Division. To win, he had to endure nine hours of judging in which he spoke to approximately fifteen judges and then an additional four hours of presentation to the general public. Placing third in a fair of this magnitude is a huge accomplishment for the high school senior since he had to compete with 96 other competitors in his region which includes not only the best of the US, but also Germany, Brazil, Japan and other countries. His project was titled, "pH-Triggered Assembly

of Gold Nanorods," and dealt with a major problem of current nanoscience research in trying to control how nanoparticles orient themselves in varying conditions. He conducted the bulk of his research at the University of South Carolina under Dr. Catherine Murphy. His school sponsor was Irmo Science Team coach Mr. Stephen Orr. Patrick will be enrolling in the Honors College of the University of South Carolina this fall as a Carolina Scholar.

In 2005, in the Region II Science Fair, we had Five hundred Fifty-Five (555) students and one hundred twenty-six (126) teachers participating in the fair. The students were selected by over two hundred (200) judges comprised of college professors, medical scientists, U.S. Army, Marine, and Air Force officers, as well as business leaders from the Midlands Community. Awards were available in 52 major categories such as Engineering, Women in Science, Vision Science, Chemistry, etc. Most awards had Junior, Senior and Team subcategories, often with 1st, 2nd, 3rd and Honorary Mention standings awarded. There were a total of 195 awards given among those varied categories and standings. This is just one of eight Regional Science Fairs in the state. Others have similar programs.
[Increased number of students winning at the National Level by 100%]

In addition, in the Middle/Elementary School Academy of Science, over 7,000 students in grades 5-8 were nominated world-wide by Science Services affiliated fairs. Winners at those fairs were then nominated to enter their projects in the 2005 Discovery Channel Young Scientist Challenge (DCYSC). From this outstanding pool of students, DCYSC judges selected 400 talented semifinalists based on the scientific merit of their work and their ability to communicate about the scientific information regarding their project. Discovery Channel Young Scientist Challenge named 10 semifinalists (a 100% increase over last year) from South Carolina in the fourth Annual Science Contest in 2005, providing ample evidence that the Academy's effort to strengthen the eight science fair regions in South Carolina is making a positive difference.

Eleven (11) Students, Seven (7) from the Midlands, were chosen by the Discovery Channel Young Scientist Challenge (DCYSC) as semifinalists (400 nation-wide). "These students have the knowledge, enthusiasm and imagination to become the scientific trailblazers of tomorrow," said Judith A. McHale, President and CEO, Discovery Communications. The breadth and knowledge demonstrated by the 400 semifinalists is inspiring and sets an example for anyone with wants to explore the world around them. The eleven semifinalists from the State of South Carolina are: Brandon N. Baker (grade 7) McCants Middle School; Emily Ann Eisenstadt (Grade 8) Crayton Middle School; Spencer Bennett Skelley (grade 7) Crossroads Middle School; Trevor Warren Auman (grade 8); Chandler Matthew Barton (grade 8), and Rachitha Rajan (grade 8) all from Dent Middle School; Velina Roumenova Kozareva (grade 5) Harbison West Elementary School; Grace Carroll Zimmermann (grade 5) St. Joseph School; Erika Lynn Mino (grade 5) Pelham Road Elementary School; Anne Virginia Cai (grade 7) Porter-Gaud School; and Seth Gaston Shelton (grade 8) D. R. Hill Middle School.

The establishment of the additional Middle / Elementary School Academy of Science is making progress. We have provided the initial contacts and are working with the school system to establish MESAS Region VII. This will be called the Sea Island Region VII MESAS.

3. What are the objectives of this program in the current fiscal year, Fiscal Year 2005-06? Explain how, if any, the objectives have changed from the prior fiscal year and why.

- To increase the number of K-12 students, teachers and schools participating in science, mathematics and engineering activities.
- To enhance the competitiveness of South Carolina students at the Annual International Science and Engineering Fairs (ISEF) (grades 9-12).
- To improve public understanding of and appreciation for the role of science, mathematics and engineering in the state.
- To expand the MESAS program from four regions to five and to update and modernize Regions I, IV & V.
- To provide mathematics and science teachers in the state with enrichment activities that can improve classroom effectiveness, promote professional growth and promote the development of leadership skills.
- To expand our efforts with The State Museum and coordinate events with EdVenture children's museum.
- To complete the establishment of a journal for citizens of South Carolina from all levels of scientific involvement - from high school students to Nobel Prize winners - to publish their works, findings and articles. The initial issue of the SCAS Journal is available online at www.scacadsci.org. (No other such journal exists in South Carolina)
  A statewide initiative will be implemented for the purpose of raising additional funds from corporate and private sources that will be used to support awards and sustain this initiative.

4. **What measures or data will be used to assess the effectiveness of this program in meeting its objectives for the current fiscal year, Fiscal Year 2005-06?**

- Three (3) national winners (top in their category) at International Science and Engineering Fair in the last four years (Prior years zero).
  Twenty-three (23) DCYSC semifinalists in the last four years (prior years zero).
  Six hundred eighty-five (685) students state-wide competing in the SCAS MESAS Mail-in contest. (Prior year 285)
- We will compare the number of students attending the South Carolina Academy of Science Annual Meeting and presenting research papers with attendance numbers from prior years.
- We will compare the number of students attending MESAS Workshops in the four MESAS regions with attendance numbers from prior years.
- We will compare the number of students receiving funds from our Young Research Grants-in-Aid Program with the number of students participating in prior years.
- We will compare the number of teachers receiving certification as a Certified Metric Specialist with the number of teachers certified from prior years and from other states.
- We will compare the number of schools in each science fair region starting a school-wide science fair program with the current number of schools already involved in school-wide science fair programs. The objective of collecting this data is to have every child in South Carolina involved with the scientific process by creating and participating in a local school-wide science fair competition. (Inquiry based learning.)
- To compare the number of students presenting research papers in grades 4 – 12 with states with similar programs.
- To compare the number of students who receive national recognition in South Carolina with students from other states.

5. What measurable actions will be taken to assure that the program objectives of the current fiscal year, Fiscal Year 2005-06, will be met?

Solicitations and publications of the Young Research Grants-in Aid Program (YRGAP), which is sponsored by the South Carolina Academy of Science (SCAS), will be increased.

- Providing workshops for teachers and students about the Middle and Elementary School Academy of Science (MESAS) and the South Carolina Junior Academy of Science (SCJAS) programs. These workshops are provided on a volunteer basis by mathematics and science faculty, who are members of the SCAS, from across the state.
- Collaborating with the SC State Department of Education in conjunction with the state's Mathematics and Science Hubs in establishing a database of all middle and high school mathematics, science faculty and departments for the purpose of increasing the number of students and teachers reached.
- Publishing four editions of the SCJAS newsletter, which provides information on the Academy's activities and YRGAP.
- Expanding the South Carolina Junior Academy of Science (SCJAS) mailing list to include teachers, schools and students who have not historically participated in the Academy's activities.
- The number of travel grants to students that will support their attendance at MESAS, SCJAS, and SCAS workshops will be increased.
- The number of awards and prizes for meritorious research that is presented by students at the SCAS/SCJAS annual meeting will be increased.
- Continue to coordinate SCAS annual activities with the following programs offered within the state: Math Counts, SC Organization of Problem Solvers, DHEC Champions of the Environment, Clemson's Project KATE, and Newberry College's Science Olympiad and Quiz Bowl.
- Establishing one additional MESAS regional site and updating & modernizing MESAS Regions I, IV, & V.
- Workshops will be provided by the Academy. The workshops are designed to improve a student's ability to design, conduct and evaluate scientific investigations. This plan will support the state's science curriculum standards.
- The number of teacher sponsors and observers at ISEF will be increased to support the students.
- A mechanism for students and teachers to share judging experiences at ISEF will be developed and initiated.
- The age at which students are allowed to participate at regional science fairs will be lowered.
- The number of SC regional science fairs that offer the Discovery Young Science Challenge awards to students in grades 5-8 will be increased where possible.
- A statewide initiative will be implemented for the purpose of raising additional funds from corporate and private sources that will be used to support awards and sustain this initiative.
- A cooperative arrangement with the State Museum and ETV that would provide for a number of activities that promote an understanding of the roles of science, mathematics and engineering in the modern world will be developed and initiated.
- Representatives from existing MESAS regions will be recruited to provide assistance to these planning committees.
- The volunteer members of the SCAS, in collaboration with volunteer members from MESAS, SCJAS, the state's institutions of higher learning (both private and public) four-year and technical colleges, staff members from among the state's Mathematics and Science Hubs and Teachers from across the state will provide a number of workshops and professional meetings over the course of a fiscal year that support the objective.

FY 2006-07 EIA Budget Request

EIA Program Name: South Carolina Junior Academy of Science

Information provided below will be used by the EIA and Improvement Mechanisms Subcommittee in recommending funding levels for this EIA program in Fiscal Year 2004-05 and in any proviso changes.

(1) FY 2005-06

Base Appropriation: $100,000

(2) FY 2006-07

Total Amount Requested: $100,000

0% Increase Requested over FY2004-05 Base

0% Decrease Requested over FY2004-05 Base

(3) Cost Estimates for Increase or Decrease in Funding for FY 2004-05

Identify how the requested increase or decrease in funding was calculated. For example, inflationary increases, program expansions, program reductions, changes in program objectives, etc., impact budgets. Please be specific.

0% Increase Requested over Base / 0% Decrease Requested over Base

Funding for 2004-2005 will be in the Amount of $100,000 and allocated as follows:

		Amount of increase from prior year
	$ 48,000 for Personnel	$0
	$ 42,000 for Programs for Students and Teachers	$0
	$ 10,000 for office expenses and travel	$0
Total	$100,000	

Personnel:
Salary for Office Manager and Program Coordinators 22,500 + 7,500 (Salary + Fringe) Total = $30,000
Salary for Director of Program 5,500 + 1,500 (Salary + Fringe) Total = $7,000
Stipends for Three Regional MESAS Directors (Each $1,000) Total = $3,000
Graduate Student: $1,600 (14 weeks, 15 hours per week @ $7.50 per hour)
5 graduate students per year: = $8,000
Work Study Student: @ $500 per year
3 Work Study Students per year = $1,500

Programs: Students and Teachers

SCJAS/MESAS	$ 20,000
Science Fairs	$ 8,000 ($1,000 per science fair region in South Carolina)
Metric Specialist Program	$ 4,000
Young Research Grant-In-Aid Program	$ 2,000
MESAS Mail-IN Contest	$ 4,000
SCAS Journal (To seek funds from Industry)	$ 4,000
Total	$ 42,000

FY 2005-06 EIA Budget Request Continued

(4) Detailed justification for increase, decrease or maintenance of funding

There will be no increase requested for FY 2005-2006

There are some needs that we will not be able to fulfill at this time. We have found that one full-time administrative assistant is not sufficient to handle the new demands on SCAS. Don Jordan is a volunteer and has directed the office as well as developed the funds for 5 years. We need to provide additional assistance for the director.

The US DOE has ended all trip awards to its labs in the U.S. We need to provide additional trip awards to students for their research. This will mean additional funds. The Academy membership dues alone cannot accomplish this. We want to provide additional support to the eight science fair directors in South Carolina. We want all the science fairs in SC to become involved with the national program Discovery Channel Young Scientist Challenge (DCYSC) for grades 5-8. The reorganization of the Hubs reshaped the district and decreased personnel, which makes it harder for a Hub to provide the leadership needed to manage a MESAS Region. As a result we will need to provide additional funds to the MESAS Directors in Regions I, IV, & V, update and modernize each region.

By the year 2005 we had hoped to have full funding in excess of $300,000 (This did not happen due to state budget) For the School year 2005-2006 we would disperse $58,000 through SPAR and the remaining $42,000 would be dispersed through the Treasurer of SCAS.

In order to do this I will seek approval from the SC Department of Education and guidance from the legislature. As you know, the SC Academy of Science is working in a critical needs area for the State of South Carolina with the objective to increase the number of K-12 students participating in science, mathematics and engineering. The office should initiate new grants to supplement the legislative funds. In addition, the office of SCAS is not considered to be a 9 to 5 job. The months of August, September, October, February, March and April require weekend and late night work.

Funding:
Our organization is funded by donations to the Trust Fund, by a grant from the state legislature, and by membership dues. Any fees charged for workshops or events are used to defray the costs associated with such events and are not fund-raising efforts in themselves. We are a non-profit organization.
The Mission: One of our missions in creating the Middle / Elementary School Academy of Science (MESAS) for grades 4-8 was to increase the number of students interested in science, mathematic and engineering areas. Our MESAS program was initiated over 15 years ago to combat the problem of decreasing percentages of U.S. citizens entering and completing Ph.D. programs in not only South Carolina, but also nation-wide. We believe our outreach effort through the Science Fairs, MESAS Workshops, Junior Academy Events (three per year), Young Research Grants-in-Aid program, and publications of these efforts make a difference.

(5) Detailed Justification for any additional FTEs Requested

None Requested

FY 2006-07 EIA Budget Request Continued

(6) Please complete the following chart which will provide detailed budget and expenditure history.

Funding Sources	2003-04 Actual	2004-05 Actual	2005-06 Estimated	2006-07 Estimated
EIA	100,000	100,000	100,000	100,000
General Fund				
Lottery				
Fees				
Other Sources				
Grant				
Contributions, Foundation	006,000	006,000	006,000	006,000
Other (Specify)				
SCAS is non-profit (fees are absorbed in operations of the programs				
Carry Forward from Prior Year	- 0 -	- 0 -	- 0 -	- 0 -
TOTAL				

Expenditures	2003-04 Actual	2004-05 Actual	2005-06 Estimated	2006-07 Estimated
Personal Service	48,000	48,000	48,000	48,000
Supplies & Materials	10,000	10,000	10,000	10,000
Contractual Services	2,000	2,000	2,000	2,000
Equipment	2,000	2,000	2,000	2,000
Fixed Charges				
Travel	2,000	2,000	2,000	2,000
Allocations to Districts/Schools				
Employer Contributions				
Other: Please explain				
Student Programs	42,000	42,000	42,000	42,000
Carry Forward from Prior Year	- 0 -	- 0 -	- 0 -	- 0 -
TOTAL				
#FTES				

FY 2005-06 EIA Budget Request Continued

Proviso Changes: Please indicate any additions, deletions or amendments to existing provisos below:

No changes in proviso

A. Proviso Number:1A.4 (Section 1, EIA, Proviso # 4 SC Junior Acad of Science)

B. Action (Indicate Amend, Delete, or Add):

C. Summary of Existing or New Proviso:

D. Explanation of Amendment to/or Deletion of Existing Proviso:

E. Justification (Why is this action necessary?):

F. Fiscal Impact (Include impact on all sources of funds -- state, federal, and other):

G. Submitted By (Include agency name submitting change, contact name and telephone number):

H. Text of New Proviso with Underline or Entire Existing Proviso Text with Strikeover and Underline: